APPENDIX C-1

Project Evaluation Procedures

Contents

Roadway Project Evaluation

Roadway expansion projects under initial consideration for inclusion in PLAN 2040 included all *Envision6* RTP projects as well as all projects identified in regional comprehensive transportation plans or in local studies. All projects underwent a two step process to determine eligibility in the plan. Each step is referred to as a "key decision point" or "KDP."

The first step, KDP 2, determined if a project was eligible for technical consideration in the RTP/TIP. (For continuity, KDP1 was a process to establish the amount of money allocated to each program area, and was not part of the project evaluation). Policy filters were applied to the project list to remove ineligible projects. The second step, KDP3, evaluated qualified projects using a series of performance measures and a benefit-cost analysis. This effort served as the final evaluation of project merit for PLAN 2040. The two steps are explained in detail below.

Project Filtering – Key Decision Point 2 (KDP2)

First, the project list was screened based on a policy filter, KDP2. This filter sought to remove projects from technical consideration that were not in line with regional goals or visions. In order for a project to move on to technical evaluation, it had to meet both of the following criteria:

- Project must be on either the Atlanta Strategic Truck Route Master Plan (ASTRoMaP) network or the Regional Strategic Thoroughfare System (RSTS)
- Project is located in one of the follow Unified Growth Policy Map (UGPM) area types[1]:
    - Region Core
    - Aerotropolis
    - Regional Employment Corridor
    - Maturing Neighborhood
    - Established Suburbs
    - Developed Suburbs

These criteria were established to make sure projects were on regionally significant corridors and in appropriate land use areas. PLAN 2040 sought to reduce the number of new projects in developing rural and rural areas of the region. However, if the proposed project did not meet the above criteria, it could still move on to technical evaluation if it passed at least one of the following filters:

- Proposed project addresses an immediate safety need
    - Project located along Top 25 vehicular crash corridor (by visible injury, serious injury, fatal injury per one mile)
    - Project located along Top 25 vehicular crash intersection (by visible injury, serious injury, fatal injury)
    - Project located along Top 25 pedestrian crash corridor (by visible injury, serious injury, fatal injury per one mile)
    - Project located along Top 25 bicycle crash intersection (by complaint, injury, visible injury, serious injury, fatal injury)
    - Project located along Top 25 heavy truck corridor (by visible injury, serious injury, fatal injury per one mile)

[1] A project may pass through Developing Rural and Rural area types in order to connect regionally significant places, but the project must be primarily located in the area types specified.

- Proposed project type is identified as a "addresses today's burning platform[2]" priority in the Statewide Strategic Transportation Plan[3]
    - HOT lanes
    - Interstate interchanges
    - Intermodal connectivity
- Proposed project is already "in the pipeline"
    - Project is currently part of the TIP and significant engineering, environmental documentation, or ROW acquisition is underway.

Project Evaluation – Key Decision Point 3 (KDP3)

System expansion projects that passed the PLAN 2040 KDP2 policy filter were then considered for the RTP's final roadway expansion list. All projects were coded simultaneously into the ARC travel demand model (TDM) and evaluated one-by-one through modeled output, in conjunction with GIS and empirical data analyses. Projects were evaluated in the year 2040 to see their impact, in each of five distinct performance measure categories. In most situations, an RTP built-out network was compared to a "no-build" scenario, in which no network modifications were made beyond what existed in the 2010 model year. Comparing built-out and no build scenarios allows for the analysis of the impact of projects on a system-wide level. The classifications of projects and performance measure methodologies follow.

First, expansion projects were broken-out by project type. This step was taken to assure a more rigorous evaluation and comparison of project types against themselves. Roadway expansion projects were evaluated and scored within the following project categories:

- Widening
- New alignment
- Intersection/Interchange
- Managed lane

From there, performance measures were calculated to determine each project's impact in each of the categories listed below. These measures were equally weighted in the final project analysis, with each of the five project categories accounting for 20% of the final evaluation score:

- Mobility – Project's impact on congestion
- Connections – Project's impact on movement to regional centers
- Safety – Location's safety record
- Economic growth – Project's impact on economic development and freight movement
- Environment/Community Impact – Location's proximity to environmentally or culturally sensitive land uses

Table 1 illustrates, at a macro scale, the methodology used to evaluate the performance measures for each project type. Further details of each measure are provided below.

[2] Arterials are a project type included in the "burning platform". The Regional Strategic Transportation System (RSTS) represents the priority network for arterials in the Atlanta region.
[3] www.it3.ga.gov

Table 1: PLAN 2040 Roadway Expansion Project Evaluation Methodology Summary

Performance Measure	Project Type	Geography	Used TDM?	Variable(s)	Time of Day	Equation	Notes
Mobility	Widening	Network	Yes	Vehicle Hours of Delay (VHD)	PM	$VHD_{Build} - VHD_{No\ Build}$	Difference between VHD in the 2040 Build and No Build scenarios
	New Alignment	Buffer					
	Intersection	Buffer					
	Managed Lane	Parallel					
Connections	Widening	Network	Yes	Volume bound to or from an activity center	PM	(To Activity Center Trips Volume) + (From Activity Center Trips Volume)	Assessed from the 2040 Build network
	New Alignment						
	Intersection						
	Managed Lane						
Safety	Widening	Network	Yes	Crash Ratio	PM	Project Crash Rate/ Regional Average Crash Rate for similar Functional Classification	Crash rate per 100 million modeled 2010 VMT for a project compared to the regional crash rate for roadways of the same functional classification. Only looked at injury and fatal crashes.
	New Alignment	Network					
	Intersection	Buffer					
	Managed Lane	Network					
Economic Growth	Widening	Network	Yes/No	Medium and Heavy Truck Volume / Project's location	Daily	Build Project Daily Truck Volume / Project Link Count	Two measures were used. 1st an evaluation of the medium and heavy truck volume. 2nd if a project intersected an economic development area. Each score equally contributed to the measure.
	New Alignment	Network	Yes/No				
	Intersection	Buffer	Yes/No				
	Managed Lane	Network	Yes/No				
Environment / Community Impact	Widening	Buffer	No	GIS Impact Analysis	-	100 – (100 * GIS Score / Highest Impact Score)	100 ft buffer was used. Score was scaled to 100, with the project scoring 100 having the least impact on environmentally/culturally sensitive land.
	New Alignment						
	Intersection						
	Managed Lane						

Mobility

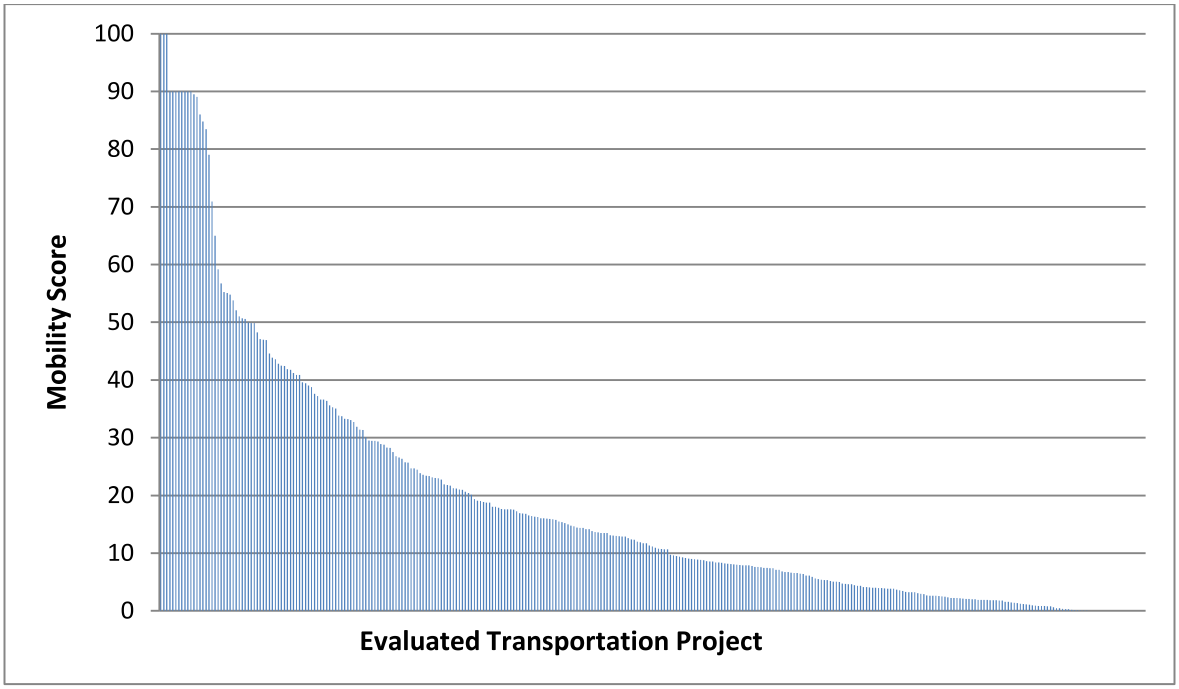
The mobility measure assesses the project's expected impact on congestion. Change in peak period vehicle hours of delay (VHD) was used for the mobility performance measure. The more a project reduced local congestion, as measured through a VHD reduction, the higher the score it received. 2040 PM period TDM build and no build networks were used to evaluate the expected mobility benefit of the projects.

Widening projects were evaluated by comparing the build and no build network VHD values. New alignments and intersection/interchange projects were evaluated by comparing the VHD differences within a half-mile buffer around the proposed project. Finally, the managed lanes projects were evaluated using one of the following methodologies:

- For segments that did not currently have HOV lanes and that added HOT lanes, delay was obtained directly from project corridor links across managed lanes and general purpose lanes, with no buffer applied.
- For segments that had existing HOV lanes, and either converted existing HOV lanes to HOT lanes or added additional HOT lanes, delay was obtained directly from the links along the project corridor, across managed lanes and general purpose lanes, with no buffer applied. Staff also checked the parallel roads along these corridors to determine the affects of HOV lane to HOT lane conversion. The parallel road was included for delay analysis if there were significant affects.
- For truck only lane and collector-distributor lane projects, volume and delay data was obtained along the project corridors. Staff also evaluated parallel routes for VHD affects.

After VHD was evaluated for each project, the results were scaled to a 100 score maximum. A logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled, based on their VHD, between 0 – 90 to fit a distribution curve similar to Figure 1. This methodology insures that projects with disproportionally high VHD values did not significantly suppress the scores of the remaining projects. This process was adopted for use with all of the performance measure categories, producing similar curves as below.

Figure 1 - Sample Mobility Hundred-Scale Score Distribution



Connections

The connections measure attempts to assess a completed project's impact on regional connectivity. A TDM select link[4] methodology was devised to calculate the number of trips by 2040 PM volume bound to, or destined from, regional activity centers. Projects that served more trips to/from these locations were deemed to improve regional connectivity and scored higher.

A GIS methodology was established to determine the link along each modeled project with the highest volume. This link was then chosen to represent the project and run through a select link analysis script. The to/from activity center volumes were summed and assigned as the score for each project. All project types were evaluated with the same methodology and scored amongst their respective category.

After the volume was evaluated for each project, the results were scaled to a 100 score maximum. A logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled, based on their volume, between 0 – 90.

Safety – Highway Incident Analysis

The Highway Incident Analysis compares the project location crash rate to the regional average crash rate for similar functional classification roadways. For this analysis, crash rate is defined as the sum of non-fatal injury crashes and fatal injury crashes per 100 million vehicle miles traveled. Property damage only (PDO) crashes were not used in this analysis. The analysis identified projects where the crash rate at the project location was higher, and therefore a higher safety risk, than the regional average for a similar type of

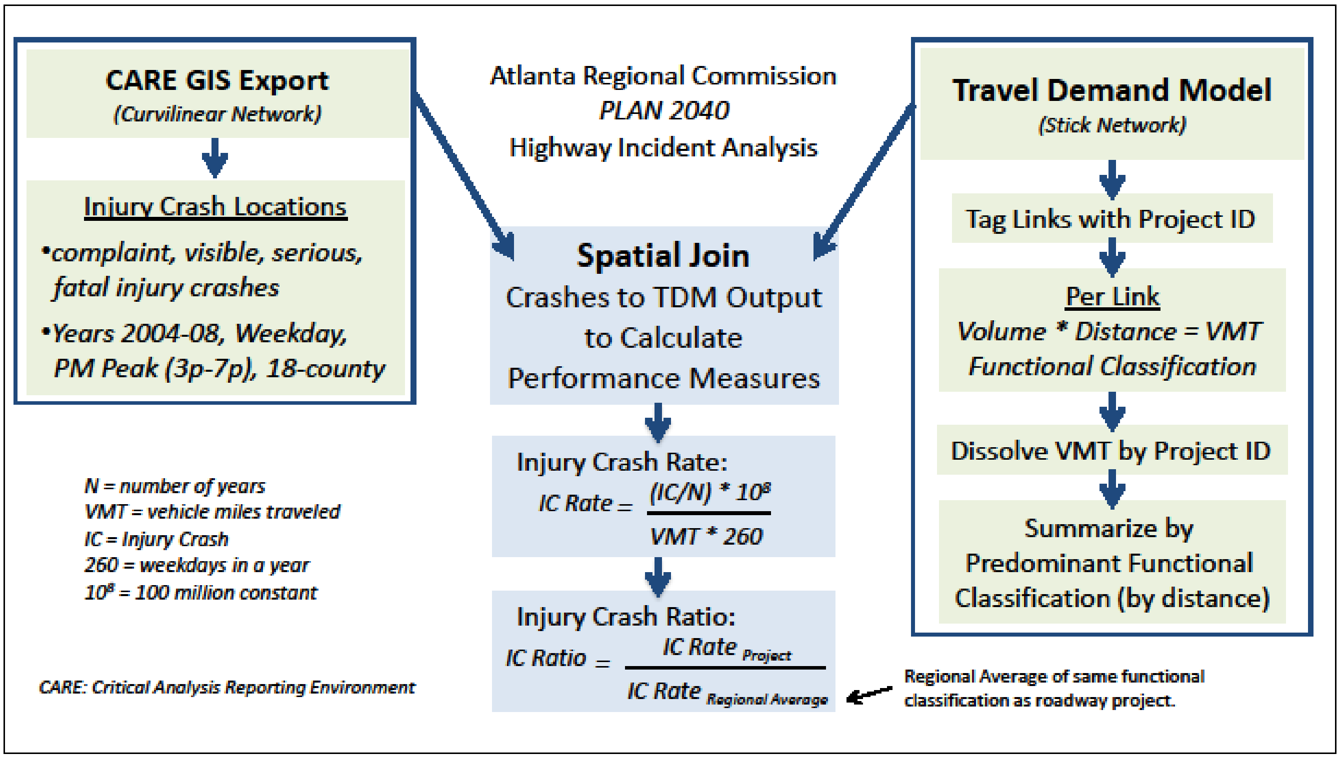
[4] Select link analysis uses the TDM to determine which trips use a particular roadway. Information about trip distance, origin and destination can be evaluated using this methodology.

roadway. A Crash Ratio greater than 1.0 indicates that the crash rate along a proposed project's location is higher than the regional average for facilities of similar functional class.

The analysis contained four steps, described below. Flow chart provided in Figure 2.

- Step 1: Determine the Regional Crash Rates by Functional Classification for the weekday PM peak-period (3:01 PM to 7:00 PM), only including injury crashes (complaint, visible, serious, fatal).
- Step 2: Determine the Crash Rates on the route(s) within each project's limits, for the weekday PM peak-period, injury crashes.
- Step 3: Determine the Project Locations' Crash Ratio (i.e. the ratio of the project location crash rate to the regional crash rate for facilities of similar functional class.)
- Step 4: Assign a score to each project based on results.

Figure 2 - Highway Incident Analysis Methodology



Step 1: Determine the regional Crash Rates by functional classification for the weekday, PM peak-period (3:01 PM to 7:00 PM), only including injury crashes (complaint, visible, serious, fatal).

Determine the number of injury crashes that occurred on weekdays during the PM peak-period on each functional classification of roadway in the 20-County area during the 5-year period 2004 to 2008: The total number of weekday PM peak-period injury crashes for each Functional Class of roadway in the 20-county area for the years 2004 to 2008 was obtained by running separate database queries for each functional classification on the Georgia CARE 2000-2009 Crash Database. The results were exported to a spreadsheet.

Determine the Weekday PM peak-period vehicle miles traveled (VMT) by functional classification for the 20-county area (adjusted for HPMS data) for year 2010 no build: he Weekday PM peak-period VMT by functional classification for the 20-county area was obtained from the ARC 20-county Travel Demand Model, which already factors adjustments comparing to HPMS daily VMT.

Calculate the Regional Injury Crash Rates by functional classification for the 20-county area, for the Weekday PM peak-period; calculated as follows:

$$ICRate = \frac{{}^{IC}/_{N} * 10^8}{VMT * 260}$$

(Equation 1)

IC Rate	Regional Crash Rate by Functional Class for weekday PM peak-period, reported as "Crashes per 100 Million Vehicle Miles Traveled"
IC	total number of weekday PM peak-period Injury Crashes that occurred on a particular Functional Class of roadway in the region for the 5-year period 2004 to 2008.
260	number of weekdays in a year
10^8	100 million constant
N	number of years
VMT	adjusted PM peak-period Regional VMT by Functional Class for an average weekday

Step 2: Determine the Crash Rates on the route(s) within each project's limits, for the weekday PM peak-period, injury crashes.

Prepare Crashes in GIS

All injury crashes (complaint, visible, serious and fatal) in the 18-county region during the 5-year period of 2004 to 2008 were exported out of the CARE 2000-2009 crash database with location information, saved in ArcGIS point layer shapefile form.

Prepare Project ID's in Model Output for Analysis

Line layer projects: Create GIS line layer shapefiles for each project in ArcGIS. These projects were laid over the Travel Demand Model (TDM) stick network before modeling and each link in the TDM network was tagged with the Project ID related to that project. This allowed for TDM measures to be exported per link with an attached Project ID, such as volume and distance.

Point layer projects: Create GIS point layer shapefiles for each project in ArcGIS. These projects were laid over the TDM network after it went through the model and links were chosen and tagged with a Project ID due to proximity to the point feature.

For both line and point layers, the links were dissolved by Project ID and the VMT was calculated using distance times volume. The functional classification extending the longest distance for the project determined the functional classification for the entire project. Each Project ID was summarized to find the longest distance by functional classification.

Spatial Join Crashes to Project Segments

Line layer projects: Crashes were spatially joined to each project within a distance of 100 feet. The crash data is on a curvilinear network and the TDM network is on a stick network, therefore the road lines do not directly lay on top of each other. Therefore, the crashes were spatially joined first, and then reviewed manually for any major discrepancies.

Point layer projects: The links closest to the point were selected, and then the crashes within 100 feet of those links were spatially joined.

Calculate Crash Rate for each Project

$$ICRate = \frac{(IC/N) * 10^8}{VMT * 260}$$

(Equation 2)

IC Rate	Regional Crash Rate by Functional Class for weekday PM peak-period, reported as “Crashes per 100 Million Vehicle Miles Traveled”
IC	total number of weekday PM peak-period Injury Crashes that occurred on a particular Functional Class of roadway in the region for the 5-year period 2004 to 2008
260	number of weekdays in a year
10^8	100 million constant
N	number of years
VMT	adjusted PM peak-period Regional VMT by Functional Class for an average weekday

Step 3: Determine the Project Locations’ Crash Ratio (i.e. the ratio of the project location crash rate to the regional crash rate for facilities of similar functional class.)

$$ICRatio = {IC\ Rate_{Project}}/{IC\ Rate_{Regional\ Average}}$$

(Equation 3)

IC Ratio	Crash Ratio for the route(s) within the limits of a particular project, for the weekday PM peak-period. NOTE: The predominant Functional Class of the route(s) within the project’s limit must be the same as the Functional Class attributed to the Region Crash Rate used to derive the Crash Ratio.
$IC\ Rate_{Project}$	injury Crash Rate on the route(s) within the project’s limits for the weekday PM peak-period.
$IC\ Rate_{Regional\ Average}$	weekday PM peak-period Regional Injury Crash Rate for a Functional Class similar to the predominant Functional Class within the project’s limits

Step 4: Assign a score to each project based on results.

After the crash ratio was evaluated for each project, the results were scaled to a 100 score maximum. A logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled, based on their volume, between 0 – 90.

Notes about tagging project ID's and selecting crashes:

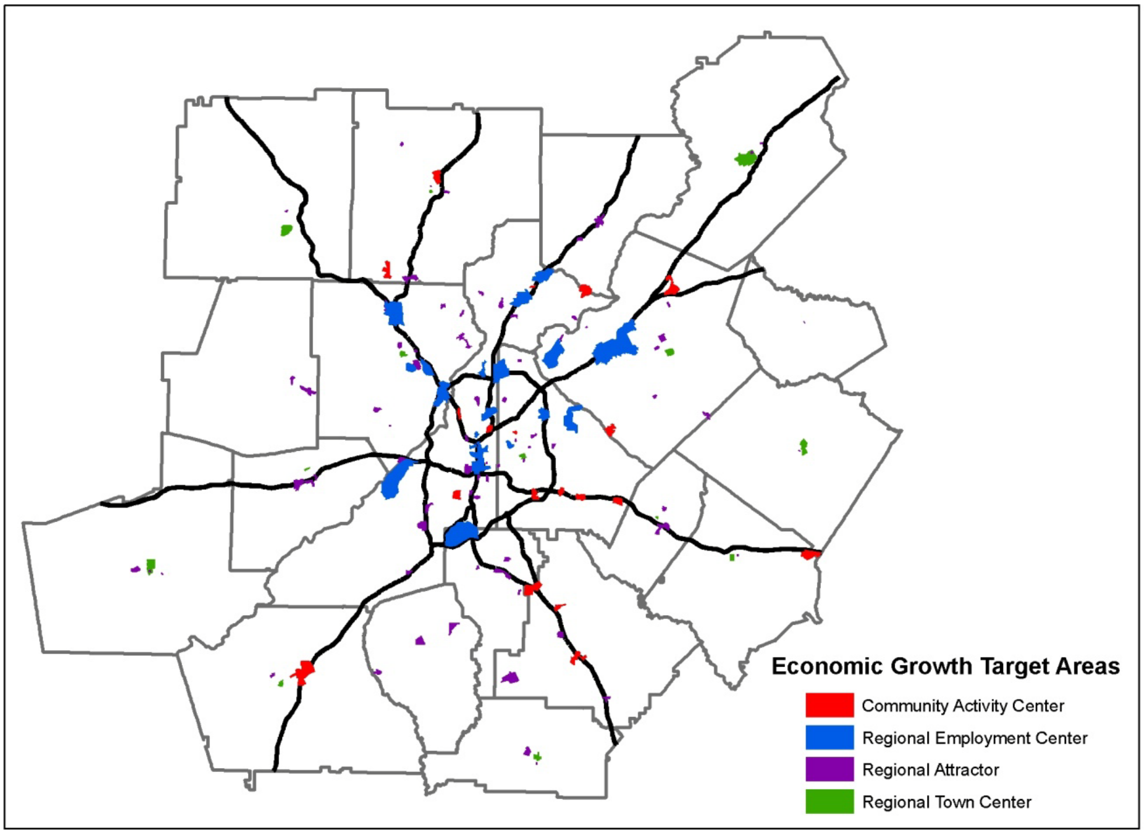
- For New Alignment projects, there were no links to tag in the TDM Network because the road did not exist. There were no crashes for the non-existent roadway either. Therefore, the closest route that traveled to and from the same end points was chosen as a substitute for measuring the new alignment.
- For Widening projects, the methodology was standard as described in this document.
- For Managed Lanes, all Interstate lanes were selected rather than HOV lanes because HOV lanes are non-existent on some segments in the Base year, and therefore VMT could not be associated with specific HOV lanes in the Base year.
- For Intersections and Interchanges (points), links and crashes were manually chosen near the point to ensure the distance of the link, and therefore the VMT associated with the link, was equal to the area in which crashes were selected. This allowed for the equation to divide crashes over VMT along the exact same distance of the link.

Economic Growth

Two separate measures were used to determine the potential economic impact a project would have on the Atlanta region. These two measures each accounted for half of the economic growth performance measure score. The measures looked at each project's location and the potential impact it would have on freight movement.

The first measure relied on a GIS analysis that determined whether proposed projects geographically intersected a subset of areas in the region highlighted for economic development. These areas were determined based on recommendations from ARC's staff freight planner and the Land Use Division. They included regional employment centers, regional attractors, community activity centers, and regional town centers throughout the region. These land use classifications encompass the vast majority of the region's employment and the major shipping and freight facilities. Figure 3 shows the classification areas for each land use type used in the analysis.

Figure 3 - Land Use Classifications Used for the Economic Growth Analysis



If a project intersected one of these economic development zones it was given a Boolean type "Yes" value. Full points were awarded to "Yes" values and no points were awarded for areas that did not intersect one of the zones of interest.

The second measure used for the economic growth performance metric relied on the ARC TDM's calculated medium and heavy truck volumes. Staff made the assumption that an improvement to network links that had higher volumes of trucks would help support the flow of goods and services within/out of the region. Total daily 2040 medium and heavy truck volume was summed for each project link, and the projects were compared against each other.

After the volume was evaluated for each project, the results were scaled to a 100 score maximum. A logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled, based on their volume, between 0 – 90.

After both the supporting economic development areas and freight movement measures were calculated, each measure was given a 50 percent weight towards the final economic growth measure's maximum score of 100.

Environment/Community Impact

To quantify the perceived impact, each project was assigned a score based on the degree to which its geographic extents overlap with those of six specific environmentally-sensitive area types. The methodology described in this section was applied to all projects subjected to the technical analysis, including both roadway capacity and transit capital projects. This methodology was unchanged between the *Envision6* RTP and PLAN 2040 with the exception of data inputs, which were updated, where applicable.

The evaluation of environmental impacts relied on a GIS-based procedure. The specific tool used to calculate the raw environmental impact scores was Spatial Analyst's "Zonal Statistics" utility, which allows for calculation of area-based statistics for a series of input regions ("zones" – in this case, the geographic extents of individual projects). The Zonal Statistics utility requires two primary inputs: a continuous raster dataset whose individual cell values are used as the basis for statistical calculations, and a collection of polygonal features that are overlaid individually upon the input raster to geographically determine which cells from the base layer are included in the statistical calculations.

For the purposes of this exercise, the input raster was a layer representing the six area types that were considered: wetlands, floodplains, historic resources, parks, water bodies, and small area supply watersheds. Individual raster layers corresponding to each of these six area types were combined into a single composite layer using the Weighted Overlay tool, also a component of the ArcGIS Spatial Analyst extension. Listed below are more detailed descriptions of the six sensitive area types, along with the weights assigned to each layer for the Weighted Overlay operation. These specific area types and corresponding weights were chosen in consultation with staff from ARC's Land Use Planning Division.

1. Wetlands (30 percent) – The wetlands inventory was derived from the National Land Cover Database 2001 (NLCD 2001), which was compiled across all 50 states and Puerto Rico as a cooperative mapping effort of the Multi-Resolution Land Characteristics (MRLC) 2001 Consortium. This land cover database is being created using mapping zones and contains standardized land cover components useful for a variety of applications. A 100-foot buffer was applied to the coverage during the analysis.

2. Floodplains (30 percent) – This layer represents the 100-year and 500-year floodplain data as delineated on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency.

3. Historic Resources (15 percent) – The historic resources inventory includes buildings, structures, historic sites, landscapes, and districts identified in the Historic Preservation Division's Historic Resources Survey or listed in the National Register of Historic Places. This information was derived from NAHRGIS, a dataset compiled by the Historic Preservation Division of the Department of Natural Resources in collaboration with the Georgia Archaeological Site File at the University of Georgia.

4. Parks (15 percent) – This layer was created by ARC's Land Use Planning Division in coordination with various planning partners. The layer represents the publicly accessible parks within ARC's greenspace database, which contains an inventory of parks and protected greenspace in the 20-county Atlanta Region.

5. Water Bodies (5 percent) – The water bodies layer is a subset of GDOT's 1999 statewide DLG-F Polygonal Hydrography dataset. This dataset contains polygonal hydrographic features including lakes, ponds, reservoirs, swamps, and islands. Only water bodies with a total acreage of 5 acres

or more were considered in the technical analysis. A buffer of 50 feet was applied to each feature prior to running the analysis.

6. Small Area Supply Watersheds (5 percent) – The source for the watersheds layer was 2003 data acquired from the Metropolitan North Georgia Water Planning District. This coverage was developed based on jurisdictional input regarding the locations of water supply intakes for small supply watersheds.

The second data input for the Zonal Statistics utility is the series of zones to be analyzed against the base raster, in this case, the geographic extents of the transportation capital projects being considered in the PLAN 2040 technical analysis. Because the capital project features initially take the form of linear and point-location features, it was necessary to apply buffers to each feature in order to convert the dataset to a polygon-based format suitable for use with the Zonal Statistics tool. The size of the buffer applied to each feature was dependent upon the specific project type:

1. For linear roadway capacity projects (including HOV lanes) and expressway based transit projects, a buffer of 100 feet was applied.

2. For point-location roadway capacity projects (e.g., interchange reconstruction), a buffer of 200 feet was applied.

Upon execution of the Zonal Statistics analysis, a series of values were produced representing the sums of all raster cell values located within each buffered project boundary (where the raster cell values indicate the combined presence of any or all of the six sensitive area types at the location of that particular cell). This project-level summary data can be viewed as a measure of the aggregate impact of each project on the six sensitive area types considered, with higher sums corresponding to a greater degree of impact.

The final step of the analysis was to convert the raw output values to integer scores ranging from 0 to 100, with projects scoring a 100 having the least impact on sensitive land uses. A logical breaks analysis set thresholds for projects to receive a score of 100. All other projects were scaled between 0 and 99.

Benefit Cost

ARC implemented a comprehensive benefit cost analysis for use in PLAN 2040. This section outlines the independent components of the benefit-cost ratio. Project impacts and externalities were monetized and placed in the benefit-cost equation provided below. If the resulting ratio is greater than 1, a project has a net positive impact, from an economic perspective. If the ratio is less than 1, a project's costs outweighs the expected monetized benefits. Due to the mix of variables used to assess benefits and costs, a negative value was possible. In that situation, the project was assumed to have negative benefits.

$$B/C = Benefits / Annualized\ Cost \qquad \text{(Equation 4)}$$

B/C	benefit-cost ratio
Benefits	combination of project benefits (as described below)
Annualized Cost	annualized project costs (as described below)

Travel demand model inputs for the 2040 build and no build scenarios were utilized to compare each projects relative impact. Table 2 outlines the inputs in the benefit-cost equation. Depending on how a project impacted travel speeds and delay along corridors, some project variables could be either a benefit or cost to the region. Each of the inputs will be discussed in the following sub sections.

Table 2 - Benefit-Cost Inputs

Input Variable	Annualized Cost	Annualized Benefits
Project Construction	✓	
Project Maintenance & Operations	✓	
Fuel Cost		✓
Delay Cost		✓
Criteria Pollutants		✓
Greenhouse Gas Emissions		✓

Project Construction, Maintenance and Operations Costs

Equation 5 defines annualized project cost. This equation was modified as implemented by GDOT in its project prioritization efforts as well as the Atlanta region's last RTP, *Envision6*, by including a term for future operations and maintenance costs.

$$A = (P + FP)\,x\,\frac{i}{1-(1+i)^{-n}} \qquad \text{(Equation 5)}$$

A	annualized project cost
P	total cost of project (engineering, right of way and construction)
FP	future operations and maintenance costs (as described in Equation 3)
n	design life (set at 25 years)
i	interest rate

Where future costs (FP) were calculated by:

$$FP = (LM_B - LM_{NB}) \times UC \times LC \qquad \text{(Equation 6)}$$

FP	future costs
LM_B	lane miles – build scenario
LM_{NB}	lane miles – no build scenario
UC	rehabilitation cost per lane mile, which varies by roadway type
LC	number of rehabilitation cycles over the course of the 25 year analysis. Two cycles were assumed.

Fuel Savings

Fuel consumption was developed using Equations 7 though 10. Since fuel use is correlated with traffic speeds, these costs use a series of equations that take into consideration the difference in project speeds between the build and no build scenarios. These equations were based on models developed by FHWA for use in its Highway Economic Requirements System (HERS) software. It is possible to calculate a negative fuel cost saving, signifying a net increase in fuel consumed along the corridor after a project is constructed.

- Autos with congested flow speed (CFS) ≤ 40 MPH

$$C = 89.72 - 3.336 \times CFS + 0.053 \times CFS^2$$

(Equation 7)

- Autos with congested flow speed > 40 MPH

$$\mathrm{C} = 87 - 2.211 \times \mathrm{CFS} + 0.029 \times \mathrm{CFS}^2$$

(Equation 8)

- Trucks with congested flow speed ≤ 20 MPH

$$\mathrm{C} = 262.18 - 1.021 \times \mathrm{CFS} - 0.062 \times \mathrm{CFS}^2 + 0.001 \times \mathrm{CFS}^3$$

(Equation 9)

- Trucks with congested flow speed > 20 MPH

$$\mathrm{C} = 1{,}262.7 - 586.87 \times \mathrm{LN(CFS)} + 80.96 \times \mathrm{LN(CFS)}^2$$

(Equation 10)

C	fuel consumption (gallons per 1,000 miles)
CFS	congested flow speed

Once fuel consumption was estimated for each project in both the build and no build scenario, fuel cost savings were calculated through Equation 11.

$$FC = \left[\frac{VMT_{NBA}}{1000} \; x \; C_{ANB} \; x \; Fuel\ Price + \frac{VMT_{NBT}}{1000} \; x \; C_{TNB} \; x \; Fuel\ Price\right] - \left[\frac{VMT_{BA}}{1000} \; x \; C_{AB} \; x \; Fuel\ Price + \frac{VMT_{BT}}{1000} \; x \; C_{TB} \; x \; Fuel\ Price\right]$$

(Equation 11)

FC	fuel cost savings
VMT_{NBA}	automobile vehicle miles traveled – no build
C_{ANB}	fuel consumption rate – autos, no build (as calculated above)
FuelPrice	assumed as $3.22 per gallon
VMT_{NBT}	truck vehicle miles traveled – no build
C_{TNB}	fuel consumption rate – trucks, no build (as calculated above)
VMT_{BA}	vehicle miles traveled – build
C_{AB}	fuel consumption rate – autos, build (as calculated above)
VMT_{BT}	truck vehicle miles traveled – build
C_{TB}	fuel consumption rate – trucks, build (as calculated above)

Delay Cost Savings

Delay cost savings were determined using the anticipated difference in delay between the build and no build scenario for each project, along with a value of time. The value of time was determined separately for trucks and automobiles. This methodology is consistent with what ARC used in the *Envision6* RTP.

$$DC = (VHT_{NB} - VHT_B) x\, [Value_A\, x\, (1 - T) + (Value_T\, x\, T)]$$

(Equation 12)

DC	delay costs savings
VHT_{NB}	vehicle hours traveled – no build
VHT_B	vehicle hours traveled – build
$Value_A$	value of time for automobiles ($13.75 per hour)
T	medium and heavy truck percent
$Value_T$	value of time for trucks ($72.65 per hour)

Criteria Pollutants and Greenhouse Gas Emissions

Finally, criteria pollutant and greenhouse gas (GHG) emissions were monetized so they could be included in the benefit-cost analysis. Fine particulate matter ($PM_{2.5}$), NO_x, volatile organic compounds (VOC), and CO_2e were included in this analysis. Monetary values were determined based on US EPA estimates of the value of health and welfare-related damages (incurred or avoided through project implementation). These estimates, measured as dollars per ton, are based on the benefits associated with Clean Air Act regulations that limit emissions of air pollutants from mobile sources. The draft environmental impact statement for the 2011-2015 Corporate Average Fuel Economy (CAFÉ) standard proposal utilizes cost per ton estimates as displayed in Table 3.

Table 3 - Criteria Pollutant Emission Damage Costs

Pollutant	Emission Damage Cost ($/ton)
$PM_{2.5}$	$164,000
NO_x	$3,900
VOC	$1,700

Emission factor data was provided for criteria pollutant from ARC's MOBILE6 lookup tables. Total criteria pollutant costs savings were evaluated using Equation 13. All three criteria pollutant values were summed to form the total criteria pollutant cost saving portion of the benefit-cost analysis.

$$CP = [\{(VMT_{NBA}\, x\, EF_{cpa} + VMT_{NBT}\, x\, EF_{cpt}) - (VMT_{BA}\, x\, EF_{cpa} + VMT_{BT}\, x\, EF_{cpt})\} / 907180]\, x\, CPC$$

(Equation 13)

CP	criteria pollutant (VOC, NOx, PM) cost savings
VMT_{NBA}	no-build light duty VMT by time period
EF_{cpa}	criteria pollutant emissions factor for light duty vehicles; based on emissions factor lookup table of speed and facility type constructed from the most current ARC Mobile6 emission factors (consistent with interagency planning assumptions for the Atlanta 8-hour ozone nonattainment area and PM2.5 nonattainment area)
VMT_{NBT}	no-build truck VMT by time period

EF_{cptk}	criteria pollutant emissions factor for all trucks; based on emissions factor lookup table of speed and facility type constructed from the most current Mobile6 emission factors (consistent with interagency planning assumptions for the Atlanta 8-hour ozone nonattainment area and PM2.5 nonattainment area).
VMT_{BA}	build light duty VMT by time period
VMT_{BT}	build truck VMT by time period
907180	grams to ton conversion factor
CPC	criteria pollutant cost per ton (see Table 3, above)

Assigning a cost to CO_2 is in continued debate at the national level. The logic behind assigning a cost is based on the concept that lowering CO_2 emissions from transportation is likely to slow the projected pace, and reduce the extent, of future climate change. This action, in turn, reduces future economic damages incurred from the resulting changing weather patterns.

Through both recent federal energy legislation proposals and model year 2011 CAFE standard final regulatory impact analysis completed jointly by the National Highway Traffic Safety Administration (NHTSA) and U.S. EPA, domestic values for the social cost of CO_2 are available. For the purposes of the 2011 CAFE rulemaking, NHTSA used a 2.4 percent annual growth rate to calculate the future increases in its estimates of both the domestic ($2 to $14/metric ton in 2007) and global ($33 to $80/metric ton in 2007) values of reducing CO_2 emissions.[5] Given the uncertainties in developing a social cost of CO_2, NHTSA tested a range representing state of the practice research for both domestic and global values.

The price of CO_2 from U.S. EPA's modeling analysis of the cap and trade system in the Waxman-Markey American Clean Energy and Security Act of 2009 estimated allowance prices of $13 per metric ton CO_2 equivalent in 2015, $16 in 2020, $27 in 2030, and $70 in 2050 in the core policy scenario. Across all scenarios modeled, the allowance price ranges from $13 to $24 per ton CO2 equivalent in 2015 and from $16 to $30 per metric ton CO_2 equivalent in 2020. These results were confirmed by a study authored by the California State Economic and Allocation Advisory Committee in March 2010 evaluating the potential for carbon cap-and-trade in California that estimates allowance prices to be in the range of roughly $20 to $60 per metric ton of emissions in 2020.[6]

Due to the range of uncertainty surrounding these estimates, ARC's inclusion of the monetized benefits of CO_2 reduction in the PLAN 2040 benefit-cost analysis takes a conservative approach. Based on a combination of the three research efforts referenced above, and comparable efforts and research in other regions, the CO_2 cost values in Table 4 were utilized for this analysis.

Table 4 - Price of Carbon for PLAN 2040 Benefit-Cost Analyses

Price of Carbon	**2010**	**2020**	**2040**
($/metric ton of CO_2)	$10	$15	$25

[5] Final Regulatory Impact Analysis – Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks. US DOT, March 2009. http://www.nhtsa.gov/DOT/NHTSA/Rulemaking/Rules/Associated%20Files/CAFE_Final_Rule_MY2011_FRIA.pdf

[6] *Allocating Emissions Allowances under a California Cap-and-Trade Program.* Recommendations to the California Air Resources Board and Environmental Protection Agency from the Economic and Allocation Advisory Committee. March 2010.

Since the final benefit-cost analysis was performed on the build and no build 2040 networks, Equation 14 assumes a cost of GHG emissions of $25/metric ton.

$$GHG = \lfloor C_a \; x \; EF_{gas} + \; C_t \; x \; EF_{diesel} \rfloor \; x \; POC \; x \; 1.05 \qquad \text{(Equation 14)}$$

GHG	greenhouse gas emission (in metric tons CO_2 equivalent) cost savings
Ca	total daily change in gallons of light duty fuel consumption (no build – build)
EF_{gas}	gasoline emissions factor (0.0088 metric tons CO_2 / gallon)[7]
Ct	total daily change in gallons of truck fuel consumption (no build – build)
EF_{diesel}	diesel emissions factor (0.01 metric tons CO_2/gallon)[6]
POC	price of carbon ($/metric ton CO_2 equivalent, see Table 4, above)
1.05	factor to convert from CO_2 to CO_2 equivalent, or total GHGs (CO_2 represents 95% of total transportation GHGs)

Scores and Tiers

After all performance measures were evaluated and a benefit-cost score developed for each project, a tier system was implemented to allow for easy comparison. A combination of each project's performance measure score and the benefit-cost score determined the designated tier. The process for tier assignment is outlined in the following paragraphs.

First, weights were applied to all of the five performance measure categories (scored for each project between 0 and 100) as outlined in previous sections. Each performance measure category was equally weighted and assigned to 20 percent of a hundred point maximum scale. Next, the median value for the benefit-cost and performance evaluation score was determined for each project type. From here, projects were designated into a tier based on their position on a coordinate access above or below the median in both the performance evaluation score and the benefit-cost analysis. Table 5 describes the tiers:

[7] http://www.epa.gov/oms/climate/420f05001.htm

Figure 4 - PLAN 2040 Project Evaluation Tiers

Tier 1 projects were considered the most qualified projects. These projects scored above the median for both benefit-cost and performance evaluation. Tier 2 and 3 projects were considered middle of the road. They scored either above the benefit-cost median and below the performance measures score median or vice versa. Tier 4 projects were considered the least qualified projects, with below median values in both fields.

Transit Project Evaluation

Unlike the roadway projects, transit projects were not separated by project type for analysis or scoring. Individual TDM runs were made for each project based on a list developed by the Regional Transit Committee (RTC). The universe of projects considered for evaluation came from the region's transit vision, CONCEPT 3. Along with single projects, a series of grouped projects were run to evaluate system benefits from grouping compatible projects. All projects were evaluated in the year 2040 and compared to a no build base that included a preset transit and roadway network. Unlike the roadway analysis, varying weights were assigned to each performance measure category to match RTP goals and priorities.

In total, 40 transit projects (or collections of projects) were evaluated. Projects were scored in similar performance categories as the roadway side, but with different metrics within each category. Table 6 illustrates the structure and weights of the project evaluation for transit projects in PLAN 2040.

Table 5 - PLAN 2040 Transit Expansion Project Evaluation Methodology Summary

Evaluation Category	Weight	Notes
Mobility	10%	System level total change in transit trips
	10%	Project level transit boardings
	10%	Project level passenger miles travelled
Connections	15%	Change in transit trips bound to/destined from activity centers
	10%	Index that looks at existing and future planned high frequency (15 mins or less headway) connections to the project. A value was assigned by multiplying the number of existing connections by two and adding the number of planning future connections.
Safety	5%	Calculates potential reduction in crashes due to switching modes from auto to transit. Calculation is determined by crash rate of transit technology planned for the project
Economic Growth	30%	Index based on the change in employment travel shed interconnectivity. This measure looks at how improved transit routes/service impacts the ability of people to move around the region with regards to access to jobs. Sums the number of employees that can access employment sites within 45 minutes by transit.
Environment/Community	5%	Same as roadway methodology. Projects that impacted more environmentally or culturally sensitive land received a lower score
State of Good Repair / Project Interface	5%	Index based on how well the new transit project will interface with the existing infrastructure and service facilities. Perfect interface given a score of 10. Some interface given a score of 5. No interface given a score of 0.

Mobility

The mobility measure assesses the impact the project will have on moving people around the region. Three different measures were selected to characterize each project's impact. These measures combined a systems and project level approach to account for redundancy in trips between the build and no build scenarios. Overall, these measures accounted for 30 percent of the total transit performance analysis score. The following measures were used:

- Total system level change in transit trips
- Project level transit boardings
- Project level passenger miles traveled

For each project, a total system level change in transit trips compares the number of transit trips taken in the Atlanta region in both the build and no build scenarios. The difference between the build and no build scenarios provides a net change in transit trips as a result of the project. This measure was used, as opposed to only using route boardings, to ensure trips that switched from one route to another were taken into consideration. Transit projects that offer too much redundancy do not perform as well as routes that improve access to underserved areas of the region.

Project level transit boardings, on the other hand, looks at only how much ridership each individual project generates. This measure allows transit planners to determine how many riders should be expected on a new route. Any trips that switched from one route to the newly modeled route would show up as a unique boarding, instead of a new transit trip. Trips that switch to the new route do so because the model sees them as more efficient, and therefore still offer some insight into correcting system level inefficiencies.

Project level passenger miles traveled is used to assess how far a new project will move people in the region. Passenger miles traveled is evaluated by multiplying a project's boardings by the distance of the route. Since transit vehicles are generally produce less pollution and allow for a more space-efficient passage of people through a region, if all other variables are held equal, the greater societal benefit is often derived from moving people a greater distance.

Similar to the roadway projects, each of the three mobility measures underwent a logical breaks analysis to set thresholds for projects to receive a score of 100 or 90. All other projects were scaled quantitatively, between 0 – 90.

Connections

Connectivity between major activity centers, and the logical interface between new and existing transit projects, comprises the two scores associated with the connections measure. For each project, the change in the number of total transit trips to major activity centers was analyzed between the build and no build scenarios. This score served as 15 percent of the total transit analysis score. Thresholds were set, through a logical breaks analysis, to assign a final score of 100 or 90. All other projects were scaled between 0 – 90.

Additionally, a methodology was devised to assess how well new transit projects would integrate and connect to existing projects in the region. The number of both existing and planned project connections was determined and a score developed. A value was assigned by multiplying the number of existing connections by two and adding the number of planning future connections. This score account for 10 percent of the total transit performance measure analysis. All scores were scaled from the highest value, with a final range from 0 – 100.

Safety - Transit Incident Congestion

To determine the impact of transit projects on incident-based roadway congestion, an original formula was devised to estimate the number of crashes prevented from occurring on the roadway system as the result of a specific transit investment. This effective reduction in crashes, which in turn leads to a commensurate reduction in incident-based congestion, can be used as an indicator of how well a transit project mitigates roadway congestion resulting from crashes (i.e. non-recurring congestion).

Transportation safety statistics have consistently shown that transit is a safer mode of travel than driving in terms of average collisions per passenger mile. This improvement in safety is observed to varying degrees with all major transit technologies. By calculating the difference between the respective crash rates for private vehicle travel and the transit technology for a particular project, and then applying this difference to the passenger mileage for the project in question, an estimate of the number of crashes prevented can be computed. This technique assumes that all travel handled by a new transit facility would otherwise be handled as private vehicle travel on the existing roadway system if the transit service were not provided.

Three specific data items are required for each project to compute the estimated reduction in crashes due to the addition of transit service:

- Daily Passenger Miles – A project-specific estimate of the total number of passenger miles handled by the transit project on a typical weekday. For the proposed *PLAN2040* transit capital projects, ARC's 20-county travel demand model was used to determine passenger mileage estimates for the year 2040. Because the model measures ridership in terms of individual routes (rather than RTP projects, which may overlap one or more individual routes), the project-level estimates were computed by aggregating the ridership estimates for the portions of any routes that overlap with the project extents (for the purposes of this exercise, it was assumed that ridership is evenly distributed along the length of each route).
- Average Crash Rate for Private Vehicle Travel – The regional average roadway crash rate, based upon the most recent roadway safety data compiled by ARC and expressed in terms of passenger miles traveled. This input was held constant for all projects being evaluated.
- Average Crash Rate for Travel by Transit – The average crash rate for the specific transit technology (e.g. heavy rail, light rail, bus, etc.) associated with the project being considered, also expressed in terms of passenger miles traveled.

Table 7 shows the mode- and technology-specific crash rates that were used in this analysis, expressed in terms of crashes per 100 million passenger miles. When possible, local rates were used rather than national averages. Such local data were available for private vehicle travel (from ARC roadway safety data) as well as for both bus and heavy rail transit (from the Federal Transit Administration's National Transit Database (NTD)). Since there are no existing light rail or commuter rail facilities in the Atlanta region, national averages from the Bureau of Transportation Statistics' National Transportation Statistics (NTS) database were used.

Table 6 - Transit Crash Rate by Mode

Mode / Technology of Travel	Crashes per 100 Million Passenger Miles	Source
Private Vehicle	379	Critical Analysis Reporting Environment (CARE), GDOT, ARC
Transit Bus	36.7	NTD data for MARTA, GRTA, CCT, GCT, 2009
Transit Heavy Rail	0.3	NTD data for MARTA, 2009
Transit Light Rail	32.3	NTS National Average, 2007
Transit Commuter Rail	1.1	NTS National Average, 2007

For each project, the most appropriate technology-specific crash rate from Table 7 was used. Special consideration was necessary for Bus Rapid Transit (BRT) projects, since the term "BRT" is applied to a wide range of project types and specific crash rates are not typically reported for BRT as a standalone technology. In this analysis, either the light rail or local bus rate was used for BRT projects, depending on the specific project characteristics. More specifically, for BRT projects featuring a transit-exclusive right-of-way, the NTS national average crash rate for light rail was used, as the separation of transit vehicles from other types of traffic is considered to have a more significant effect on crash rates than the specific transit vehicle type. For mixed-traffic BRT facilities, the standard bus crash rate from the NTD was used. The street car was measured as light rail.

Given the above data, the following formula was used to compute an estimate of the number of crashes removed from the roadway due to the addition of a specific transit facility:

$$\Delta_C = \frac{PM * 260}{10^8} * (CR_{PV} - CR_T)$$

(Equation 15)

ΔC	net change in Crashes resulting from the addition of the transit project being considered
PM	number of daily Passenger Miles associated with the transit investment
260	number of weekdays in a year
10^8	100 million constant
CR_{PV}	Crash Rate for private vehicle travel, expressed in collisions per 100 million passenger miles
CR_T	Crash Rate for travel by transit for the specific transit technology corresponding to the project being considered, expressed in collisions per 100 million passenger mile

After a crash reduction score was evaluated for each project, the results were scaled to a 100 score maximum. A logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled, based on their score, between 0 – 90.

Economic Growth

Economic growth is a major component in PLAN 2040's transit project evaluation, accounting for 30 percent of the overall transit score. Providing workers with an alternative mode of transportation to employment in the region increases economic viability by ensuring more consistent travel times. In addition, providing choices allows commuters to assess alternatives and select the mode that provides the greatest utility, increasing system-wide efficiency.

ARC staff developed a methodology to assess the total change in system-wide access to employment due to the inclusion of a transit project. A script looked at the employment reachable within 45 minutes by transit from each traffic analysis zone (TAZ) in the TDM. The resulting value was summed and provided an index to the extent each new transit project enhanced regional expansion of employment sheds by various transit technologies.

Projects that served somewhat redundant routes could still enhance interconnectivity, and therefore enhance mode choice in the region. However, projects that served completely new TAZs in the region would receive higher scores, in general, due to the potential links to new employment and population sheds.

After the employment index was calculated, a logical breaks analysis set thresholds for projects to receive a score of 100 or 90. All other projects were scaled quantitatively, between 0 – 90.

Environment/Community Impact

Transit projects were evaluated with an identical methodology to the one used for roadway projects. The only exception is that a smaller buffer of 50 feet was applied to transit projects. The best performing project was set to a score of 100 and the others were all scaled based on that project's score.

State of Good Repair/Project Interface

Given the region's aging transit infrastructure and the rising cost of transit maintenance and operations, an increased emphasis is being placed on the ability to maintain transit infrastructure in a state of good repair (SOGR). To that end, the State of Good Repair / Project Interface index was devised to serve as a qualitative measure representing the degree to which a proposed transit expansion project can interface with existing vehicle fleets and utilize existing transit maintenance infrastructure, thereby enhancing regional transit SOGR practices through improved standardization and economies of scale. Each project was assigned one of three possible values for this measure:

- **Excellent Opportunity for Interface with Existing SOGR Infrastructure** (100 points) – Projects whose vehicular and maintenance needs can be substantially met through the utilization of existing facilities and infrastructure. For example, an extension of the existing heavy rail system, which would utilize the same type of vehicle as the existing MARTA system and would require no new maintenance infrastructure, would fall into this category.

- **Moderate Opportunity for Interface with Existing SOGR Infrastructure** (50 points) – Projects that can integrate with existing fleets and/or utilize existing maintenance facilities to some degree, but will still require significant investment in new SOGR infrastructure. A new light rail line that intersects an existing rail maintenance facility would fall into this category, as it could utilize the existing facility but significant modifications would likely be necessary.

- **Minimal Opportunity for Interface with Existing SOGR Infrastructure** (0 points) – Projects whose proposed technology and/or location allow for little to no integration with existing transit fleets and maintenance infrastructure.

Cost Effectiveness

The benefit-cost analysis methodology for transit was replaced by a cost effectiveness score. Instead of assessing a monetized set of costs and benefits associated with each transit project, the final weighted performance measure score was divided by the total project capital cost and 20 years of operating costs to devise a cost-effectiveness score (see Equation 16, below). This approach enabled ARC to account for a wider range of transit benefits, as captured in the scoring process, which could not be directly monetized and compared against the cost of building each project.

$$CostEffectiveness = \frac{\sum Weighted\ Project\ Performance\ Measures}{Capital\ Costs + 20\ years\ Opearing\ Costs} \qquad \text{(Equation 16)}$$

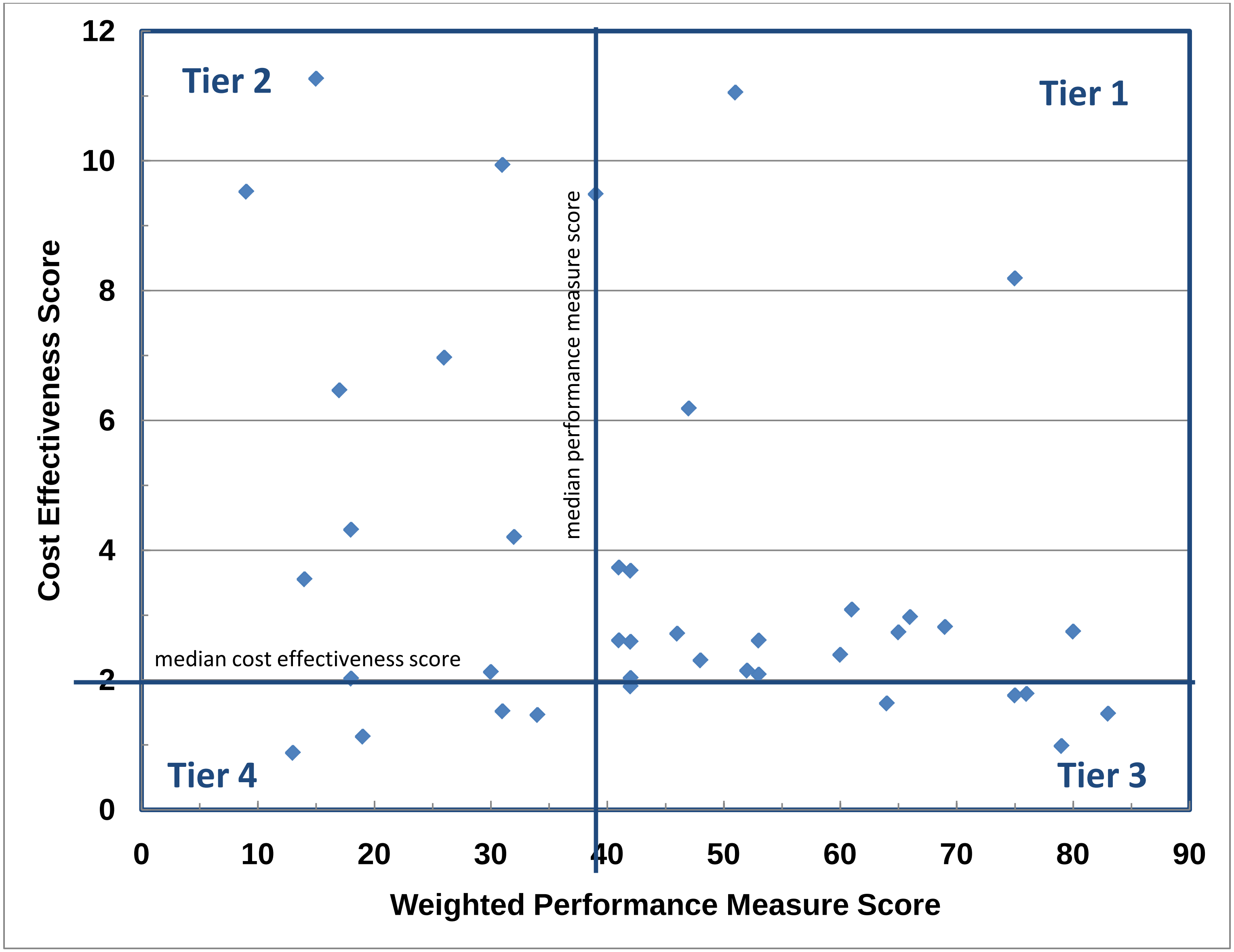
Similar to the roadway benefit-cost analysis, the resulting cost effectiveness score was used to assign each project to a tier.

Scores and Tiers

The next step of the project evaluation was to move all the projects into a tier for easy comparison. A combination of each projects performance measure score and the cost effectiveness score determined the designated tier. The process for tier assignment is identical to the one outlined in the roadway projects methodology.

Tier 1 projects were considered the most qualified projects. These projects scored above the median for both cost effectiveness and performance evaluation. Tier 2 and 3 projects were considered middle of the road. They scored either above the benefit-cost median and below the performance measure score median or vice versa. Tier 4 projects were considered the least qualified projects, with below median values in both fields.

Figure 5 - Transit Project Tier Analysis



Tables 7 and 8 show the result of the project evaluation outlined in this Appendix. Additional roadway projects were also evaluated that did not make the constrained list in Table 7. All transit evaluations are included in Table 8. Contact ARC for more information on projects that are not provided in the tables below.

Table 7 - Roadway Constrained RTP Project Evaluation Scores

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
AT-246	SR 237 (Piedmont Road) - Widening	From Lenox Road to SR 141 (Peachtree Road)	Roadway / General Purpose Capacity	Long Range	4	3	90	24	44	100	100	58	1
AT-247	I-75/85 - Interchange Modifications	At Spring Street / Ivan Allen Plaza	Roadway / Interchange Upgrade	Long Range	1148	90	90	19	77	100	100	77	1
AT-248	I-85 North - Interchange Modification	At Lindbergh Drive	Roadway / Interchange Upgrade	Long Range	298	100	36	100	49	0	100	72	1
AT-249	Upper Alabama Street Extension	From Forsyth Street to Centennial Olympic Park Drive	Roadway / General Purpose Capacity	Long Range	16	85	90	90	17	100	100	85	1
AT-250	US 41 (Northside Drive) - Widening	From Simpson Road to I-75 North	Roadway / General Purpose Capacity	Long Range	7	42	64	23	81	100	100	64	1
AT-251	I-85 North / SR 400 - Interchange Modification	-	Roadway / Interchange Upgrade	Programmed	1916	100	42	45	47	0	100	62	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CL-014	SR 85	FROM ADAMS DRIVE TO I-75 SOUTH - INCLUDING INTERCHANGE AT FOREST PARKWAY	Roadway / General Purpose Capacity	Programmed	4	21	50	29	75	0	78	43	1
CL-015	SR 85	FROM SR 279 (OLD NATIONAL HIGHWAY) IN FAYETTE COUNTY TO ROBERTS DRIVE IN CITY OF RIVERDALE	Roadway / General Purpose Capacity	Programmed	8	51	37	12	52	0	87	43	1
CL-064	US 23	FROM SR 138 (NORTH HENRY BOULEVARD / STOCKBRIDGE ROAD) TO I-675 IN CLAYTON COUNTY	Roadway / General Purpose Capacity	Programmed	7	16	9	100	6	100	82	52	1
CL-AR-247	US 19/41 (TARA BOULEVARD)	FROM FLINT RIVER ROAD TO TARA ROAD	Roadway / General Purpose Capacity	Long Range	12	89	43	69	54	0	65	59	1
CO-231	US 41 (COBB PARKWAY)	FROM BRIDGE OVER CHATTAHOOCHE E RIVER TO AKERS MILL ROAD	Roadway / General Purpose Capacity	Programmed	2	4	60	16	8	100	100	47	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CO-338A	SR 176 (LOST MOUNTAIN ROAD)	FROM SR 120 (DALLAS HIGHWAY) TO SR 360 (MACLAND ROAD)	Roadway / General Purpose Capacity	Long Range	2	14	23	7	61	0	100	35	1
CO-367	SR 360 (MACLAND ROAD)	FROM SR 120 (MARIETTA HIGHWAY) IN PAULDING COUNTY TO SR 176 (NEW MACLAND ROAD / LOST MOUNTAIN ROAD) IN COBB COUNTY	Roadway / General Purpose Capacity	Programmed	4	55	9	10	27	0	80	34	1
CO-426	SR 120 (Roswell Road) - Widening	From Johnson Ferry Road to Bridgegate Drive	Roadway / General Purpose Capacity	Long Range	2	29	31	5	65	0	83	36	1
CO-AR-070	I-285 WEST	AT ATLANTA ROAD	Roadway / Interchange Capacity	Programmed	7	90	38	25	63	0	100	57	1
DK-328	LITHONIA INDUSTRIAL BOULEVARD EXTENSION - PHASE III	FROM HILLANDALE DRIVE TO EVANS MILL ROAD - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Programmed	37	86	44	54	66	0	88	61	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
DK-AR-206	I-285 SOUTH	AT SR 155 (FLAT SHOALS PARKWAY)	Roadway / Interchange Capacity	Programmed	11	90	26	27	70	0	100	56	1
DK-AR-242	I-20 EAST	AT PANOLA ROAD	Roadway / Interchange Capacity	Programmed	42	100	19	27	38	100	100	63	1
DO-016	US 78 (Bankhead Highway)	FROM SOUTH SWEETWATER ROAD TO SR 6 (THORNTON ROAD)	Roadway / General Purpose Capacity	Programmed	10	33	9	15	54	0	100	37	1
DO-019	SR 166 (FAIRBURN ROAD / CAMPBELLTON ROAD)	FROM SR 92 IN DOUGLAS COUNTY TO SR 70 (FULTON INDUSTRIAL BOULEVARD) IN FULTON COUNTY	Roadway / General Purpose Capacity	Programmed	8	40	37	9	39	0	69	35	1
DO-220A	LEE ROAD: SEGMENT 2	FROM SR 92 (FAIRBURN ROAD) TO MONIER AVENUE	Roadway / General Purpose Capacity	Programmed	3	13	7	29	28	0	96	32	1
FN-011	DUNWOODY PLACE	FROM NORTHRIDGE ROAD TO SR 9 (ROSWELL ROAD)	Roadway / General Purpose Capacity	Long Range	2	4	20	46	10	0	100	35	1
FN-263	SR 120 (Kimball Bridge Road) - Widening	From Old Milton Parkway to Jones Bridge Road	Roadway / General Purpose Capacity	Long Range	9	28	29	8	41	0	88	35	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
FN-265	SR 120 (Abbotts Bridge Road) - Widening	From Parsons Road to Peachtree Industrial Boulevard	Roadway / General Purpose Capacity	Long Range	4	42	24	9	48	0	70	34	1
FS-003	SR 70 (FULTON INDUSTRIAL BOULEVARD)	FROM SR 6 (CAMP CREEK PARKWAY) TO I-20 WEST	Roadway / General Purpose Capacity	Long Range	11	39	71	6	83	100	79	57	1
FS-225	SR 70 (Fulton Industrial Boulevard) - Widening	From SR 166 (Campbellton Road) to SR 6 (Camp Creek Parkway)	Roadway / General Purpose Capacity	Long Range	2	13	49	3	31	100	70	40	1
FT-001D	SR 9 (ATLANTA HIGHWAY): SEGMENT 4	FROM SR 141 (PEACHTREE PARKWAY / BETHELVIEW ROAD) TO SR 20 (BUFORD HIGHWAY)	Roadway / General Purpose Capacity	Programmed	9	45	6	47	12	100	75	46	1
GW-020A1	METRO ARTERIAL CONNECTOR - SR 20 (CUMMING HIGHWAY / NELSON BROGDON BOULEVARD)	FROM CHATTAHOOCHEE RIVER TO PEACHTREE INDUSTRIAL BOULEVARD IN GWINNETT COUNTY - EXCLUDES CHATTAHOOCHEE RIVER BRIDGE	Roadway / General Purpose Capacity	Programmed	6	79	3	8	59	0	87	41	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
GW-020D	METRO ARTERIAL CONNECTOR - SR 20 (BUFORD DRIVE)	FROM I-85 NORTH TO ROCK SPRINGS ROAD	Roadway / General Purpose Capacity	Programmed	13	23	13	31	51	0	99	38	1
GW-269	SR 124 (SCENIC HIGHWAY)	FROM US 78 (MAIN STREET IN CITY OF SNELLVILLE) TO RONALD REAGAN PARKWAY	Roadway / General Purpose Capacity	Long Range	41	71	17	19	57	0	99	47	1
GW-271B	PLEASANT HILL ROAD	MCCLURE BRIDGE ROAD TO CHATTAHOOCHE E RIVER	Roadway / General Purpose Capacity	Long Range	11	65	34	7	66	0	85	45	1
GW-364	SR 20 (Buford Drive) - Widening	From SR 124 (Braselton Highway) to Hurricane Shoals Road	Roadway / General Purpose Capacity	Long Range	13	41	8	14	70	0	98	39	1
GW-367	US 78 (East Main Street) - Frontage Roads	From SR 124 (Scenic Highway) to SR 84 (Grayson Parkway)	Roadway / General Purpose Capacity	Long Range	13	90	90	56	90	0	93	75	1
GW-368	Peachtree Industrial Boulevard - Collector Distributor Lanes	From Peachtree Parkway to Sugarloaf Parkway	Roadway / General Purpose Capacity	Long Range	13	100	100	3	100	100	53	71	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
GW-371	SR 140 (Jimmy Carter Boulevard) - Widening	From SR 13 (Buford Highway) to SR 141 (Peachtree Industrial Boulevard)	Roadway / General Purpose Capacity	Long Range	16	47	68	14	43	100	100	60	1
GW-374	SR 141 (Peachtree Parkway) - Widening	From Peachtree Industrial Boulevard to Fulton County Line	Roadway / General Purpose Capacity	Long Range	4	83	73	4	58	100	75	63	1
HE-020A	SR 20/81 (HAMPTON STREET): SEGMENT 1	FROM EAST OF I-75 SOUTH TO PHILLIPS DRIVE	Roadway / General Purpose Capacity	Programmed	7	11	5	100	20	100	82	52	1
HE-020B	SR 20/81 (HAMPTON STREET / KEYS FERRY ROAD) - CONVERT TO EAST/WEST ONE WAY PAIR	FROM JONESBORO ROAD AT THE NORFOLK SOUTHERN RAIL LINE TO LEMON STREET	Roadway / General Purpose Capacity	Programmed	8	29	3	87	25	0	97	46	1
HE-113	SR 155	FROM I-75 SOUTH TO SR 81	Roadway / General Purpose Capacity	Programmed	7	16	7	100	46	0	91	47	1
HE-179	WESTERN PARALLEL CONNECTOR	FROM JONESBORO ROAD TO HUDSON BRIDGE ROAD	Roadway / General Purpose Capacity	Programmed	86	100	11	100	14	100	46	63	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
PA-015	BILL CARRUTH PARKWAY (FORMERLY WEST HIRAM PARKWAY)	FROM SR 92 (HIRAM DOUGLASVILLE HIGHWAY) NEAR INTERSECTION OF PANTER SCHOOL ROAD TO INTERSECTION OF US 278 (JIMMY LEE SMITH PARKWAY) AND SR 120 (MARIETTA HIGHWAY) - WIDENING AND NEW ALIGNMENT	Roadway / General Purpose Capacity	Programmed	2	11	2	40	9	100	71	36	1
PA-092A	METRO ARTERIAL CONNECTOR - SR 92 (HIRAM DOUGLASVILLE HIGHWAY)	FROM BETWEEN BROWN AND MALONE STREETS IN DOUGLAS COUNTY (TERMINUS OF DO-282C) TO NEBO ROAD IN PAULDING COUNTY	Roadway / General Purpose Capacity	Programmed	6	48	6	28	29	0	74	34	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
PA-092B1	METRO ARTERIAL CONNECTOR - SR 92 (HIRAM ACWORTH HIGHWAY)	FROM NEBO ROAD TO SR 120 (MARIETTA HIGHWAY)	Roadway / General Purpose Capacity	Programmed	3	41	8	50	35	100	80	49	1
PA-092E	METRO ARTERIAL CONNECTOR - SR 92 (DALLAS ACWORTH HIGHWAY)	FROM CEDARCREST ROAD TO COBB COUNTY LINE NORTH OF OLD STILESBORO ROAD - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Programmed	8	16	5	17	75	0	90	33	1
RO-235A	SIGMAN ROAD EXTENSION / HAYDEN QUARRY ROAD	FROM DEKALB COUNTY LINE TO I-20 AT SIGMAN ROAD	Roadway / General Purpose Capacity	Long Range	26	90	67	24	77	0	97	63	1

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
RO-235D	METRO ARTERIAL CONNECTOR - SIGMAN ROAD	FROM IRWIN BRIDGE ROAD TO SR 138 (WALNUT GROVE ROAD) [ONLY PORTION FROM LOGANVILLE HIGHWAY TO SR 138 IS ON THE ARTERIAL PERIMETER]	Roadway / General Purpose Capacity	Long Range	2	4	3	22	15	100	92	36	1
RO-AR-138	SR 138/20 (WALNUT GROVE ROAD / MCDONOUGH HIGHWAY)	AT I-20 - BRIDGE WIDENING AND RAMP IMPROVEMENTS	Roadway / Interchange Capacity	Long Range	9	53	7	90	42	100	100	64	1
BA-033	SR 11/53/211 (Broad Street) - Widening	From US 29 (Atlanta Highway) to SR 82 (East Broad Street)	Roadway / General Purpose Capacity	Long Range	9	14	3	15	22	0	99	28	2
CH-010A2	BELLS FERRY ROAD: SEGMENT 1	FROM SOUTHFORK WAY TO VICTORIA ROAD	Roadway / General Purpose Capacity	Programmed	4	33	2	8	16	0	76	25	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CH-020A2	METRO ARTERIAL CONNECTOR - SR 20 (CUMMING HIGHWAY / KNOX BRIDGE HIGHWAY) WIDENING	FROM SR 108 (FINCHER ROAD) TO I-575	Roadway / General Purpose Capacity	Long Range	3	55	6	15	45	0	0	20	2
CH-140D2	SR 140 (HICKORY FLAT ROAD): SEGMENT 4	FROM I-575 TO EAST CHEROKEE DRIVE	Roadway / General Purpose Capacity	Programmed	2	23	7	23	21	0	95	32	2
CL-012A	US 23 (MORELAND AVENUE)	FROM LAKE HARBIN ROAD TO ANVIL BLOCK ROAD	Roadway / General Purpose Capacity	Long Range	2	16	22	16	8	0	84	28	2
CL-041	SR 54 (FAYETTEVILLE ROAD / JONESBORO ROAD)	FROM MCDONOUGH ROAD IN FAYETTE COUNTY TO US 19/41 (TARA BOULEVARD) IN CLAYTON COUNTY	Roadway / General Purpose Capacity	Long Range	2	31	15	7	19	0	56	24	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CL-101	METRO ARTERIAL CONNECTOR - SR 920 (MCDONOUGH ROAD)	FROM SR 54 (JONESBORO ROAD) IN FAYETTE COUNTY TO US 19/41 (TARA BOULEVARD) IN CLAYTON COUNTY	Roadway / General Purpose Capacity	Programmed	2	17	2	30	14	0	37	19	2
CL-230A	ANVIL BLOCK ROAD	FROM GRANT ROAD TO BOULDERCREST ROAD	Roadway / General Purpose Capacity	Programmed	11	8	14	0	12	0	99	25	2
CL-260	C.W. GRANT PARKWAY GRADE SEPARATION	AT NORFOLK SOUTHERN RAIL LINE - INCLUDES REALIGNMENT OF CONLEY ROAD AND US 19/41 IN VICINITY	Roadway / Interchange Capacity	Programmed	7	48	28	31	10	0	100	42	2
CO-206D	STILESBORO ROAD	FROM ROSEHEDGE WAY TO KENNESAW DUE WEST ROAD	Roadway / General Purpose Capacity	Long Range	3	17	8	7	9	0	61	20	2
CO-301	SR 92 (LAKE ACWORTH DRIVE / COWAN ROAD)	FROM SR 3/US 41 (NORTH COBB PARKWAY) TO GLADE ROAD	Roadway / General Purpose Capacity	Programmed	2	13	2	13	29	0	54	19	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CO-344A	CEDARCREST ROAD	FROM PAULDING COUNTY LINE TO GOVERNOR'S TOWNE DRIVE	Roadway / General Purpose Capacity	Programmed	5	5	6	17	6	0	100	26	2
DK-030A	US 278 (COVINGTON HIGHWAY)	FROM EVANS MILL ROAD TO SR 124 (TURNER HILL ROAD)	Roadway / General Purpose Capacity	Programmed	4	11	2	24	15	0	100	29	2
DK-065A	PANOLA ROAD: SEGMENT 1	FROM SR 155 (SNAPFINGER ROAD) TO SR 212 (BROWNS MILL ROAD)	Roadway / General Purpose Capacity	Long Range	4	7	3	4	13	0	91	22	2
DK-065B	PANOLA ROAD: SEGMENT 2	FROM SR 212 (BROWNS MILL ROAD) TO THOMPSON MILL ROAD	Roadway / General Purpose Capacity	Programmed	3	18	12	11	28	0	100	31	2
DK-162	BOULDERCREST ROAD	FROM LINECREST ROAD TO I-285	Roadway / General Purpose Capacity	Programmed	3	14	10	13	18	0	83	26	2
DK-327A	HAYDEN QUARRY ROAD / SIGMAN ROAD EXTENSION	FROM TURNER HILL ROAD IN DEKALB COUNTY TO ROCKDALE COUNTY LINE	Roadway / General Purpose Capacity	Long Range	3	7	8	4	14	0	94	24	2
DK-340	WESLEY CHAPEL ROAD	FROM BORING ROAD TO SR 155 (FLAT SHOALS PARKWAY)	Roadway / General Purpose Capacity	Long Range	3	8	9	15	18	0	98	28	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
DK-341A	FLAKES MILL ROAD	FROM RIVER ROAD TO SR 155 (FLAT SHOALS PARKWAY)	Roadway / General Purpose Capacity	Long Range	4	13	12	9	15	0	94	27	2
DO-252B	CHAPEL HILL ROAD	FROM DORSETT SHOALS ROAD TO CENTRAL CHURCH ROAD	Roadway / General Purpose Capacity	Long Range	2	4	6	32	26	0	98	31	2
FA-085	SR 85	FROM SR 92 to GRADY AVENUE	Roadway / General Purpose Capacity	Long Range	3	9	6	54	3	0	30	20	2
FN-269	SR 9 (Atlanta Street) - Reversible Lane Removal and Widening	From Marietta Highway to Riverside Drive	Roadway / General Purpose Capacity	Long Range	4	8	17	11	35	0	96	30	2
FN-270	Jones Bridge Road - Widening	From Taylor Road to Douglas Road	Roadway / General Purpose Capacity	Long Range	7	21	14	14	11	0	92	29	2
FN-AR-100A	SR 400	FROM VICINITY OF HAMMOND DRIVE AND ABERNATHY ROAD TO NORTH OF SPALDING DRIVE - ADDITION OF 4-LANE COLLECTOR/DISTRIBUTOR SYSTEM	Roadway / General Purpose Capacity	Long Range	5	40	50	27	42	100	77	53	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
FT-001C	SR 9 (ATLANTA HIGHWAY): SEGMENT 3	FROM SR 371 (POST ROAD) TO SR 141 (PEACHTREE PARKWAY)	Roadway / General Purpose Capacity	Programmed	4	21	2	38	21	0	56	25	2
FT-008B	BETHELVIEW ROAD	FROM CASTLEBERRY ROAD TO SR 20 (CANTON HIGHWAY)	Roadway / General Purpose Capacity	Long Range	3	43	9	13	22	0	44	24	2
GW-078C	US 78 (MAIN STREET IN CITY OF SNELLVILLE) CONTINUOUS FLOW INTERSECTION	AT SR 124 (SCENIC HIGHWAY)	Roadway / Interchange Capacity	Programmed	9	90	15	40	13	0	100	50	2
GW-099A	US 23 (BUFORD HIGHWAY): SEGMENT 1	FROM OLD PEACHTREE ROAD TO SUGARLOAF PARKWAY	Roadway / General Purpose Capacity	Long Range	3	9	5	4	20	0	100	26	2
GW-099C	US 23 (BUFORD HIGHWAY): SEGMENT 3	FROM SAWNEE AVENUE IN GWINNETT COUNTY TO SR 347 (FRIENDSHIP ROAD) IN HALL COUNTY	Roadway / General Purpose Capacity	Programmed	8	29	3	3	14	0	96	28	2
GW-331	CONNECTOR STREET	FROM HEWATT ROAD TO BRITT ROAD	Roadway / General Purpose Capacity	Programmed	30	43	1	18	8	0	100	33	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
GW-AR-204B	SR 316 GRADE SEPARATION	AT SR 20/124 (BUFORD DRIVE) AND COLLINS HILL ROAD	Roadway / Interchange Capacity	Programmed	9	100	15	20	32	0	100	50	2
GW-AR-242	HOSPITAL DRIVE CONNECTOR ROAD	FROM INTERSECTION OF WEST LAWRENCEVILLE STREET AND MCCLURE BRIDGE ROAD TO SR 120 (ABBOTTS BRIDGE ROAD)	Roadway / General Purpose Capacity	Programmed	46	26	32	12	0	0	100	34	2
HE-107	US 23	FROM DOWNTOWN MCDONOUGH TO SR 138 (NORTH HENRY BOULEVARD)	Roadway / General Purpose Capacity	Programmed	4	50	5	49	19	0	17	26	2
HE-AR-216	I-75 SOUTH	AT JODECO ROAD	Roadway / Interchange Capacity	Programmed	41	100	17	19	35	0	100	51	2

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
PA-063	PAULDING COUNTY TECHNOLOGY PARK LOCAL ACCESS ROAD - PHASE 2	FROM INTERSECTION OF TECHNOLOGY PARK PHASE 1 ROADWAY AND US 278 TO A NEW INTERSECTION ON THE EAST SIDE OF US 278 AT A POINT SOUTH OF THE EXISTING INTERSECTION	Roadway / General Purpose Capacity	Programmed	16	1	12	52	0	0	87	30	2
RO-235C	SIGMAN ROAD	FROM EAST OF LESTER ROAD TO IRWIN BRIDGE ROAD	Roadway / General Purpose Capacity	Programmed	4	6	9	9	16	0	100	26	2
RO-235E1	SIGMAN ROAD	FROM SR 20/138 (WALNUT GROVE ROAD) TO OLD COVINGTON ROAD / DOGWOOD DRIVE	Roadway / General Purpose Capacity	Long Range	2	5	3	10	15	0	100	25	2
AT-001	US 78/278 (D.L. HOLLOWELL PARKWAY)	FROM HARWELL ROAD TO SR 280 (H.E. HOLMES DRIVE)	Roadway / General Purpose Capacity	Long Range	1	9	50	31	50	0	100	43	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
AT-244	I-285 WEST AT I-20 WEST INTERCHANGE RECONSTRUCTION	-	Roadway / Interchange Upgrade	Programmed	5	90	90	12	100	0	100	68	3
CH-020A3	METRO ARTERIAL CONNECTOR - SR 20 (CUMMING HIGHWAY)	FROM I-575 TO SCOTT ROAD	Roadway / General Purpose Capacity	Programmed	-3	0	8	30	56	100	100	43	3
CH-020B	METRO ARTERIAL CONNECTOR - SR 20 (CUMMING HIGHWAY) WIDENING	FROM SCOTT ROAD TO SR 369 (HIGHTOWER ROAD)	Roadway / General Purpose Capacity	Programmed	0	19	4	19	48	0	94	32	3
CH-140E3	SR 140 (HICKORY FLAT ROAD): SEGMENT 5	FROM EAST CHEROKEE DRIVE TO MOUNTAIN ROAD	Roadway / General Purpose Capacity	Programmed	1	9	9	37	32	0	94	33	3
CL-017	BATTLE CREEK ROAD	FROM VALLEY HILL ROAD TO SOUTHLAKE PARKWAY	Roadway / General Purpose Capacity	Programmed	0	1	32	50	7	0	89	35	3
CL-019	MOUNT ZION BOULEVARD	FROM SOUTHLAKE PARKWAY TO LAKE HARBIN ROAD	Roadway / General Purpose Capacity	Long Range	1	9	72	21	19	0	65	35	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CO-AR-304	I-285 WEST	AT SR 280 (SOUTH COBB DRIVE)	Roadway / Interchange Capacity	Programmed	3	69	34	33	69	0	100	54	3
DK-065C	PANOLA ROAD: SEGMENT 3	FROM THOMPSON MILL ROAD TO FAIRINGTON ROAD - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Programmed	-1	0	11	41	32	100	100	44	3
DK-330	TURNER HILL ROAD	FROM MALL PARKWAY TO 1500 FEET WEST OF MCDANIEL MILL ROAD - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Programmed	1	5	4	8	6	100	97	33	3
DK-AR-241	I-285 EAST	AT I-20 EAST	Roadway / Interchange Capacity	Programmed	3	90	90	25	90	0	100	70	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
DO-022	LEE ROAD / SOUTH SWEETWATER ROAD - WIDENING	FROM VULCAN DRIVE TO SKYVIEW DRIVE AND OPERATIONAL IMPROVEMENTS FROM SKYVIEW DRIVE TO US 78 (BANKHEAD HIGHWAY) TO I-20 WEST	Roadway / General Purpose Capacity	Long Range	0	0	22	29	50	0	100	35	3
DO-252A	CHAPEL HILL ROAD	FROM CENTRAL CHURCH ROAD TO STEWARTS MILL ROAD	Roadway / General Purpose Capacity	Long Range	-1	2	4	24	24	100	87	36	3
DO-282B	METRO ARTERIAL CONNECTOR - SR 92 REALIGNMENT PHASE II	FROM SR 92 (FAIRBURN ROAD) EAST OF I-20 NEAR PINE DRIVE TO US 78 (BROAD STREET)	Roadway / General Purpose Capacity	Programmed	3	14	90	90	90	0	100	68	3
DO-282C	METRO ARTERIAL CONNECTOR - SR 92 REALIGNMENT PHASE III	FROM US 78 (BROAD STREET) TO SR 92 (DALLAS HIGHWAY)	Roadway / General Purpose Capacity	Programmed	2	7	79	44	90	0	100	55	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
FN-221	JOHNSON FERRY ROAD GRID BLOCK SYSTEM AND OPERATIONAL IMPROVEMENT S	FROM EAST OF SANDY SPRINGS CIRCLE TO HAMMOND DRIVE	Roadway / General Purpose Capacity	Programmed	1	1	11	21	5	100	100	37	3
FN-232A	SR 140 (ARNOLD MILL ROAD)	FROM MOUNTAIN ROAD IN CHEROKEE COUNTY TO RANCHETTE ROAD IN FULTON COUNTY	Roadway / General Purpose Capacity	Programmed	0	5	12	64	31	0	95	38	3
FN-AR-203	I-285 NORTH	AT SR 9 (ROSWELL ROAD)	Roadway / Interchange Capacity	Long Range	2	90	35	11	67	0	100	54	3
FT-001A	SR 9 (ATLANTA HIGHWAY): SEGMENT 1	FROM FULTON COUNTY LINE TO MCFARLAND ROAD	Roadway / General Purpose Capacity	Programmed	1	2	9	90	17	0	96	41	3
FT-306B	SR 306 (KEITH BRIDGE ROAD): SEGMENT 2	FROM SR 400 TO SR 369 (BROWNS BRIDGE ROAD)	Roadway / General Purpose Capacity	Programmed	1	6	4	53	49	0	96	37	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
GW-308B	METRO ARTERIAL CONNECTOR [ALIGNMENT BYPASSING CITY OF LAWRENCEVILLE] - SUGARLOAF PARKWAY EXTENSION: PHASE 2	FROM SR 316 EAST OF LAWRENCEVILLE TO SR 20 (BUFORD DRIVE / MALL OF GEORGIA PARKWAY) NEAR INTERSECTION WITH SR 324 (GRAVEL SPRINGS ROAD)	Roadway / General Purpose Capacity	Programmed	8	100	7	24	100	100	57	58	3
GW-308C	SUGARLOAF PARKWAY EXTENSION: PHASE 3	FROM SR 20 (BUFORD HIGHWAY / MALL OF GEORGIA PARKWAY) TO PEACHTREE INDUSTRIAL BOULEVARD	Roadway / General Purpose Capacity	Programmed	9	90	90	30	100	100	88	80	3
NE-004	SR 162 (SALEM ROAD)	FROM OLD SALEM ROAD TO BROWN BRIDGE ROAD	Roadway / General Purpose Capacity	Long Range	1	13	4	37	12	0	99	32	3
NE-069	ALMON ROAD	FROM ROCKDALE COUNTY LINE TO I-20 EAST	Roadway / General Purpose Capacity	Programmed	2	6	6	47	8	0	99	33	3

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
RO-034	OLD COVINGTON HIGHWAY	FROM GREEN STREET TO SR 138/20 (WALNUT GROVE ROAD)	Roadway / General Purpose Capacity	Long Range	0	0	0	6	7	100	100	32	3
RO-242A	METRO ARTERIAL CONNECTOR - SR 20 (LOGANVILLE HIGHWAY)	FROM SIGMAN ROAD TO PLEASANT HILL ROAD	Roadway / General Purpose Capacity	Long Range	1	8	8	34	21	100	53	33	3
SP-022	US 19/SR 3	FROM NORTH OF WEST ELLIS ST/ CR 804 TO NORTH OF LAPRADE RD/ CR 18	Roadway / General Purpose Capacity	Programmed	1	4	8	19	32	100	90	37	3
BA-010	SR 316 INTERCHANGE	AT SR 211 (BETHLEHEM STREET)	Roadway / Interchange Capacity	Long Range	0	1	2	53	3	0	100	32	4
BA-026	SR 316 INTERCHANGE	AT SR 81 [ENGINEERING AND DESIGN COVERED UNDER SCOPE OF BA-010]	Roadway / Interchange Capacity	Programmed	1	8	5	69	8	0	100	37	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
BA-027	SR 316 INTERCHANGE	AT SR 11 [ENGINEERING AND DESIGN COVERED UNDER SCOPE OF BA-010]	Roadway / Interchange Capacity	Programmed	4	31	3	67	7	0	100	41	4
BA-028	SR 316 INTERCHANGE	AT SR 53 [ENGINEERING AND DESIGN COVERED UNDER SCOPE OF BA-010]	Roadway / Interchange Capacity	Programmed	2	13	2	43	6	100	100	42	4
CL-238	GODBY ROAD	FROM SOUTHAMPTON ROAD TO SR 314 (WEST FAYETTEVILLE ROAD)	Roadway / General Purpose Capacity	Programmed	1	1	4	41	4	0	100	30	4
CO-329	METRO ARTERIAL CONNECTOR - SR 92 (DALLAS ACWORTH HIGHWAY)	FROM PAULDING COUNTY LINE TO US 41 (NORTH COBB PARKWAY)	Roadway / General Purpose Capacity	Programmed	2	5	4	4	74	0	91	28	4
CW-034	SR 16	FROM I-85 SOUTH TO US 29 SOUTH	Roadway / General Purpose Capacity	Programmed	0	0	0	27	10	0	100	26	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
CW-063	SR 154 (Sharpsburg McCollum Road) - Widening	From SR 34 to US 29	Roadway / General Purpose Capacity	Long Range	1	8	15	14	35	0	55	22	4
CW-AR-003	I-85 SOUTH	AT POPLAR ROAD - NEW INTERCHANGE	Roadway / Interchange Capacity	Programmed	-2	5	2	57	14	0	100	34	4
DK-065E	PANOLA ROAD: SEGMENT 5	FROM SNAPFINGER WOODS DRIVE TO SR 12 (COVINGTON HIGHWAY) - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Programmed	0	1	21	18	32	0	98	31	4
FA-235C	WEST FAYETTEVILLE BYPASS: PHASE 3	FROM LESTER ROAD TO REDWINE ROAD	Roadway / General Purpose Capacity	Long Range	0	0	0	73	1	0	3	15	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
FA-236A	EAST FAYETTEVILLE BYPASS: SEGMENT 1	FROM SOUTH JEFF DAVIS DRIVE TO SR 54 (FAYETTEVILLE ROAD) - DESIGN PHASE WILL INCLUDE ACCESS MANAGEMENT PLAN	Roadway / General Purpose Capacity	Long Range	-1	0	8	22	9	0	65	20	4
FA-236B	EAST FAYETTEVILLE BYPASS: SEGMENT 2	FROM SR 54 (FAYETTEVILLE ROAD) TO SR 85 [PE AND ROW FUNDS INCLUDED UNDER SCOPE OF FA-236A]	Roadway / General Purpose Capacity	Long Range	0	0	6	12	6	0	100	24	4
FN-067A	SR 9 (NORTH MAIN STREET / CUMMING HIGHWAY)	FROM ACADEMY STREET TO WINDWARD PARKWAY	Roadway / General Purpose Capacity	Programmed	1	4	21	34	9	0	87	30	4
FN-222	SR 9 (CUMMING HIGHWAY)	FROM WINDWARD PARKWAY TO FORSYTH COUNTY LINE	Roadway / General Purpose Capacity	Long Range	2	6	8	12	8	0	88	23	4
FN-233A	McGINNIS FERRY ROAD: SEGMENT 1	FROM UNION HILL ROAD TO SARGENT ROAD	Roadway / General Purpose Capacity	Long Range	0	4	4	40	21	100	47	31	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
FT-008A	BETHELVIEW ROAD	FROM SR 9 (ATLANTA HIGHWAY) TO CASTLEBERRY ROAD	Roadway / General Purpose Capacity	Programmed	-1	0	8	13	31	0	90	25	4
FT-061A	METRO ARTERIAL CONNECTOR - SR 20 (CANTON HIGHWAY / CUMMING HIGHWAY)	FROM SR 369 (HIGHTOWER ROAD) IN CHEROKEE COUNTY TO SR 371 (POST ROAD) IN FORSYTH COUNTY	Roadway / General Purpose Capacity	Long Range	1	26	6	9	49	0	85	30	4
FT-313	METRO ARTERIAL CONNECTOR - SR 20	FROM SR 371 (POST ROAD) TO SR 400	Roadway / General Purpose Capacity	Long Range	0	2	1	43	49	100	31	30	4
HE-126A1	HAMPTON LOCUST GROVE ROAD	FROM SR 20 (MCDONOUGH ROAD) TO SR 155	Roadway / General Purpose Capacity	Long Range	1	3	0	12	8	0	39	12	4
HE-920B	METRO ARTERIAL CONNECTOR - SR 920 (MCDONOUGH ROAD / JONESBORO ROAD)	FROM US 19/41 (TARA BOULEVARD) IN CLAYTON COUNTY TO I-75 SOUTH IN HENRY COUNTY	Roadway / General Purpose Capacity	Programmed	1	16	2	38	18	100	0	23	4
LS-GW-310	ROCKBRIDGE ROAD GRADE SEPARATION	AT CSX RAIL LINE SOUTH OF WEBB PARKWAY	Roadway / Interchange Capacity	Lump Sum	5	7	5	0	0	0	100	22	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
NE-003	EAST COVINGTON BYPASS	FROM SR 36 TO SR 12	Roadway / General Purpose Capacity	Long Range	0	0	0	14	5	0	94	22	4
NE-033A	SR 162 (SALEM ROAD)	FROM BROWN BRIDGE ROAD TO SR 81	Roadway / General Purpose Capacity	Long Range	1	3	2	20	6	0	100	26	4
PA-062	PAULDING COUNTY BUSINESS AND TECHNOLOGY PARK ROADWAY	FROM END OF AIRPORT PARKWAY TO END OF ROADWAY	Roadway / General Purpose Capacity	Programmed	2	0	12	52	0	0	80	29	4
PA-092C	METRO ARTERIAL CONNECTOR - SR 92 (HIRAM ACWORTH HIGHWAY)	FROM SR 120 (MARIETTA HIGHWAY) TO CEDARCREST ROAD	Roadway / General Purpose Capacity	Programmed	0	4	5	26	46	0	100	32	4
RO-206	SR 162 (SALEM ROAD)	FROM FLAT SHOALS ROAD IN ROCKDALE COUNTY TO OLD SALEM ROAD IN NEWTON COUNTY	Roadway / General Purpose Capacity	Long Range	1	8	7	32	20	0	100	32	4

ARC ID	Description	Limits	Project Type	Project Status	Project Evaluation Scores								
					B/C Ratio	Delay	Connectivity	Safety	Freight	Economic Growth	Environment	Total	Tier
WA-002	METRO ARTERIAL CONNECTOR - SR 20 (CONYERS ROAD / LOGANVILLE HIGHWAY)	FROM PLEASANT HILL ROAD IN ROCKDALE COUNTY TO NORTH SHARON CHURCH ROAD IN WALTON COUNTY	Roadway / General Purpose Capacity	Long Range	1	17	13	5	28	0	15	13	4
WA-003	MONROE EAST CONNECTOR	FROM SR 11 AT LOWER INDUSTRIAL PARK ROAD SOUTH OF MONROE TO INTERSECTION OF SR 83 (UNISIA DRIVE) AND GOOD HOPE ROAD EAST OF MONROE	Roadway / General Purpose Capacity	Programmed	-2	0	1	2	17	0	0	2	4
WA-021	METRO ARTERIAL CONNECTOR - SR 20 (LAWRENCEVILLE ROAD / CONYERS ROAD)	FROM NORTH SHARON CHURCH ROAD TO SR 81 [INCLUDES ONE-WAY PAIR IN LOGANVILLE]	Roadway / General Purpose Capacity	Long Range	1	6	11	34	35	0	90	32	4
WA-026	CHARLOTTE ROWELL BOULEVARD	FROM US 78/SR 10 TO SR 11 NORTH (MONROE CITY LIMITS)	Roadway / General Purpose Capacity	Programmed	1	0	1	1	20	0	89	20	4

Table 8 - Transit RTP Project Evaluation Scores

Transit Project Description / Route Description	Project Evaluation Scores											
	Trip	Boardings	Passenger Miles	Connectivity	Multimodal	Safety	Economic Growth	Environment	State of Good Repair	Total	Cost Effectiveness	Tier
KSU - Cumberland - Northside - Lindbergh - Decatur	90	78	74	90	44	48	100	56	50	80	2.75	1
Express Bus Network	100	16	59	100	75	41	100	0	50	75	8.19	1
KSU - Cumberland - Downtown	90	56	59	90	67	38	77	75	0	69	2.82	1
KSU - Cumberland - Midtown	90	51	54	90	31	35	82	74	0	66	2.97	1
I-20 East	90	87	100	100	51	80	29	83	0	65	2.74	1
KSU - Cumberland - Perimeter	78	37	35	90	23	23	84	73	0	61	3.09	1
Social Circle Commuter Rail	82	34	100	90	51	90	6	89	0	51	11.05	1
East Point - Southern Crescent Extension	60	9	5	90	15	3	48	96	100	47	6.18	1
Gainesville Commuter Rail	65	22	86	72	56	60	9	87	50	46	2.72	1
Beltline	54	69	30	20	43	19	38	85	50	42	3.68	1
Griffin Commuter Rail	56	25	73	86	56	51	5	61	0	41	3.73	2
Temple Commuter Rail	64	24	78	82	46	55	4	38	0	39	9.48	2
Clifton Corridor	40	24	11	20	21	7	39	93	50	32	4.20	2
Senoia Commuter Rail	40	20	59	58	47	41	4	41	0	31	9.94	2
Newnan Commuter Rail	30	16	43	41	46	30	4	63	0	26	6.97	2
Doraville - Norcross	13	6	5	22	11	3	3	100	100	18	4.32	2
Ponce North Marietta Streetcar	23	32	9	5	20	5	10	99	0	17	6.46	2
Ponce North Streetcar	16	29	6	5	23	3	7	100	0	15	11.26	2
West Line Extension	4	9	3	5	8	2	1	100	100	14	3.55	2
Downtown EW Streetcar	1	2	0	2	38	1	0	98	0	9	9.52	2
Commuter Rail Network	100	100	100	100	62	100	82	0	50	83	1.48	3
Arterial BRT Network	100	100	90	100	100	63	64	0	50	79	0.98	3
Canton - KSU	90	70	84	100	31	54	90	81	0	76	1.79	3
Canton - KSU - Cumberland - Midtown	90	64	90	100	31	61	90	56	0	75	1.76	3
Windward - Perimeter - Norcross - Gwinnett Place	90	55	42	90	16	27	90	33	0	64	1.64	3

Transit Project Description / Route Description	Project Evaluation Scores											
	Trip	Boardings	Passenger Miles	Connectivity	Multimodal	Safety	Economic Growth	Environment	State of Good Repair	Total	Cost Effectiveness	Tier
KSU - Cumberland - Marietta Boulevard - Downtown	90	52	48	90	62	31	52	78	0	60	2.39	3
I-285 North to Norcross	57	34	24	79	23	16	67	86	50	53	2.61	3
Cumberland - Midtown - Peachtree Street - South DeKalb	61	79	55	77	70	35	33	60	0	53	2.08	3
Perimeter - Gwinnett Place	70	38	27	90	16	18	63	80	0	52	2.15	3
Perimeter - Doraville - Gwinnett Place	68	33	26	81	16	17	56	81	0	48	2.30	3
Winder Commuter Rail	62	21	82	66	52	58	15	12	50	42	2.59	3
Norcross - Gwinnett Arena	56	33	23	83	15	15	34	72	50	42	2.0	3
Cumberland - Downtown EW Streetcar - South DeKalb	41	56	38	48	64	25	32	70	0	42	1.90	3
I-285 North to Doraville	43	27	14	53	25	9	57	87	0	41	2.61	4
Windward - Perimeter - Cumberland	39	22	17	40	18	11	51	43	0	34	1.46	4
Downtown EW Streetcar - Northside - Cumberland	21	30	18	29	57	12	26	87	0	30	2.12	4
Streetcar Network	27	81	24	6	82	14	9	96	0	31	1.52	4
Downtown EW Streetcar - South Dekalb	12	29	18	11	41	12	6	81	0	18	2.02	4
Peachtree Streetcar	4	45	15	1	70	8	0	98	0	19	1.13	4
Windward - Perimeter	17	10	6	13	8	4	13	58	0	13	0.88	4